American Druggist

AN ILLUSTRATED TRADE JOURNAL.

VOL. XX. No. 4. NEW YORK, FEBRUARY 15TH, 1891. WHOLE No. 202.

GERRARD. MABEN. RANSOM. MARTIN. MARTINDALE. SIEBOLD. CONROY. PROCTOR. ATKINS. CLAGUE. PLOWMAN.

NAYLOR. REYNOLDS SCHACHT. GROVES. BRADY. UMNEY. BENGER. THRESH.

REPRESENTATIVE BRITISH PHARMACISTS.

THE Year-Book of the British Pharmaceutical Conference, lately received, contains a portrait group of some eminent contributors to pharmaceutical science which will be of interest to their numerous friends on this side of the ocean, and which we, therefore, reproduce for their benefit. The gentlemen represented were present at the meeting held at Newcastle-on-Tyne in September, 1889, and were principally officers elected for 1889-90. MR. C. UMNEY, F.I.C., F.C.S., of London, was the President. Messrs. HENRY B. BRADY, F.R.S., LL.D., F.C.C.S., of London; THOMAS B. GROVES, F.C.S., of Weymouth; G. F. SCHACHT, F.I.C., F.C.S., of Clifton, Bristol; RICHARD REYNOLDS, F.I.C., F.C.S., of Leeds; S. R. ATKINS, J.P., of Salisbury; F. B. BENGER, F.I.C., F.C.S., of Manchester, were Vice-Presidents, having also served as President. S. PLOWMAN, F.R.C.S., of London, was also a Vice-President; W. MARTINDALE, F.C.S., of London, was Treasurer; JOHN C. THRESH, M.B., D.Sc., of Manchester, and W. A. H. NAYLOR, F.I.C., F.C.S., of London, were the Honorary General Secretaries; A. W. GERRARD, F.C.S., of London; N. H. MARTIN, F.C.S., of Newcastle-on-Tyne; and F. RANSOM, F.C.S., of Hitchin, were members of the Executive Committee, and LOUIS SIEBOLD, F.I.C., F.C.S., of Manchester, was and is editor of the Year-Book. T. M. CLAGUE, of Newcastle-on-Tyne, was the Local Secretary. M. CONROY, F.C.S., of Liverpool; MR. BARNARD S. PROCTOR, F.C.S., of Newcastle-on-Tyne (whose "Lectures on Practical Pharmacy" have become almost classical), and T. MABEN, F.C.S., of Hawick. Most of these are so well known by their writings as to require no special mention. MR. MARTINDALE has since been made President for 1890-91.

[ORIGINAL COMMUNICATION.]

ELDERBERRY JUICE AS AN INDICATOR.

BY

CLAUDE C. HAMILTON, M.D., PH.G.,

Demonstrator of Chemistry in the Kansas City College of Pharmacy and University Medical College of Kansas City.

THE expressed juice of the fruit of *Sambucus canadensis*, or elder, has a garnet-red color when neutral or acid, but turns green when alkaline. This property led to some experiments by the author as to its value as an indicator in volumetric analysis. These experiments show the elderberry juice to be not only superior to litmus for any titrations, but equal in efficiency to rosolic acid as an indicator in the estimation of ammonia or phosphoric acid. When the indicator is first added to ammonia the color is a "muddy" blue, becoming clearer and of a pea-green color as the acid is added from the burette. This green is brighter and more distinct as the final end to alkalinity approaches, and, when a drop of acid is added in excess, instantly becomes a garnet-red color. The turn of the indicator was exactly at the number of cubic centimeters required to turn rosolic acid yellow, while phenolphthalein gradually faded out at a few tenths cubic centimeters more.

In titrating the precipitate of $MgNH_4PO_4$ by Stolba's method, the red color appears at just twice the cubic centimeters of HCl required to turn rosolic acid yellow. If the precipitate is dissolved in HCl and the excess measured back by NaHO, the green appears at just twice the cubic centimeters required to turn rosolic acid red. At the point where rosolic acid just turns, elderberry juice has a violet color. Then when the formula is Na_2HPO_4 the elderberry juice is green, and is not restored to acid till the formula is H_3PO_4. The final point is more distinct when the $MgNH_4PO_4$ is dissolved in excess of HCl and the acid measured back by NaHO. The author is engaged on further experiments in regard to the action of this substance with phosphates to determine its practical value.

In titrating carbonates a bluish violet appears at the point when phenolphthalein is just decolorized (without heating), and changes to red at the same point that methyl orange is turned red. The change of color is not very distinct, depending on keeping the solution at a constant temperature. These experiments were made with elderberry wine carefully neutralized with NaHO. The fresh juice may be preserved by addition of one-fifth its volume of alcohol. The author finds it quite efficient in all titrations, unless it be acetic acid, when the colors seem so pale as to be rather indistinct.

Stomach Bitters in the Custom House.

A CLAIM had been made that a certain bitters should be classified and assessed at 50 per cent as a proprietary preparation. The Collector had levied duty on the bitters at the rate of $2 per gallon and 3 cents on the bottle. The Board of General Appraisers holds that the bitters are substantially similar to the spirituous beverages enumerated in paragraph 313, Act of 1883. The label on the bitters recommends it as a drink, whether mixed with ice water or as a flavoring for a cocktail; as a stimulus to the appetite and an aid to digestion, and as a stomach strengthener at all times. The decision of the Collector holding the bitters to be a spirituous beverage is upheld.

[ORIGINAL COMMUNICATION.]

A SIMPLE TEST FOR THE PRESENCE OF LANOLIN.

BY

FRANK T. GREEN,

Instructor in Chemistry, California College of Pharmacy.

SEARCHING for crystals in a patented article consisting mainly of lanolin, I made an ethereal solution—10 drops of melted lanolin to 10 C.c. of ether—and placed a few drops on a slide. Examining the field under a power of 240 diameters, I found sheep's-wool fibres—unmistakable from those of cotton in being firm and rounded, not flattened or twisted. Several samples of lanolin gave like results. Admiring the careful supervision of the chemical department of your journal, I write this fact for the first time, hoping it will be one aid to the searcher in that troubled field—the examination of fats and oils.

SAN FRANCISCO, CAL., February 2d, 1891.

Analysis of the So-called Swiss Honey.

ON most of the hotel tables in Davos, and in fact, generally speaking, throughout Switzerland, will be found a light, brown-colored compound, having the consistence and appearance of what is known in England as "Golden Syrup." The compound in question is, by a pleasant fiction, called *honey;* and the majority of people when partaking of it believe that they are eating *real Swiss honey*. The stuff, however, is a fraud and a sham, and does not contain a particle of honey. It is manufactured in large quantities in various parts of Switzerland, and the subjoined analysis will reveal its true character; and though it may not be absolutely deleterious, it certainly cannot be recommended as an article that should enter into the dietary scale of an invalid; in fact, there may be conditions under which it would prove decidedly harmful, and, if for no other reason than that it is an imposition, visitors should carefully eschew it.

ANALYSIS OF THE SHAM HONEY.

The analysis was made by Mr. Philip Holland, F.C.S.:

Cane Sugar	30.27
Glucoses	41.66
Water	26.67
Ash	00.40
	100.00

SAMPLE OF REAL HONEY.

Analysis made by Dr. Hassall, author of "Food and Its Adulterations," etc., etc.:

Cane Sugar	00.94
Glucoses	79.48
Water	19.56
Ash	00.02
	100.00

In comparing the two samples the reader will note the marked difference in the quantity of cane sugar and glucose. In the Swiss there is 30.27 of cane sugar, while the 00.94 in Dr. Hassall's sample was no doubt accidental. Real honey should consist mainly of *glucoses*, which comes from the Greek word meaning sweet. It is less sweet than cane sugar, and, in fact, is nothing more nor less than the sugar of the flowers from which the bees collect their stores; it can also be extracted from dried grapes and starch, in which case it is called "grape sugar," or "starch sugar."—From the "J. E. M." *Guide to Davos-Platz.*

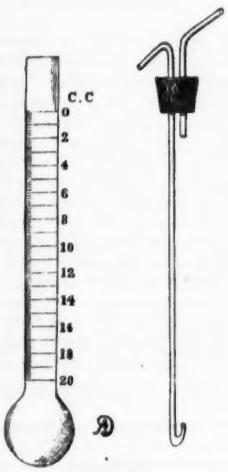
[J. E. M. seems to us hypercritical, and we fail to comprehend why (if the analyses above given indicate the difference between them) an invalid, or any one, who can, with safety, eat genuine honey, cannot eat this artificial honey. We do not approve of sophistication, but speak only upon the question raised by the author.—ED. A. D.]

ROLFF'S MEASURING FUNNEL.

MR. J. ROLFF, of Dornburg, Germany, describes (in *Pharm. Zeit.*) a handy measuring funnel, which has the form shown in the cut. At *c* a piece of glass is inserted, which permits watching the rising of the liquid. The funnel has a cover to keep out dust, etc., a stopcock, and a shoulder at *f*, which permits it to rest upon the neck of any vessel into which liquid is to be poured. It will be easy for any tinsmith to make such an apparatus.

A PRACTICAL ETHER SEPARATOR.

THE separator which was some time ago recommended by Prof. N. A. Viall (and Prof. Caldwell) for removing the ethereal layer from the top of the aqueous liquid in assaying citrate of iron and quinine, may also be employed with advantage—as we are informed by a correspondent—for opium assay, where it becomes necessary to remove the ethereal layer containing the narcotine in solution. This layer is usually poured off, along a glass rod, upon the filter, and, as it cannot thus be entirely poured off, a fresh lot of ether is added, which dilutes the remaining portion, and the whole is again transferred upon the filter. Some operators employ coils of filtering paper to soak up the ether; this requires caution to prevent small crystals of morphine, which usually float on top of the aqueous layer, from being soaked up with the ether.



Viall's Ether Separator.

The apparatus recommended by Prof. Viall is here shown. As originally applied to citrate of iron and quinine, it is used as follows:

Four Gm. of this salt are placed into the glass bulb tube, which is about 8 inches long and divided on the stem into ½ C.c. Next 10 C.c. of water containing 1 Gm. of tartaric acid (to hold the iron in solution) are added, and the salt dissolved by agitation. A few drops of ammonia are then added, and afterwards enough strong solution of soda to fill up the bulb to the lowest division mark on the stem. Next the stem is filled with ether to 0, the orifice closed with a cork, and the contents agitated. When the two layers are separated, the stopper containing the two glass tubes (the longer one of which is turned up at the other end, and the length of which is such that when the stopper is inserted the bend is not entirely immersed in the aqueous layer) is inserted, and, by blowing into the short tube, the ethereal layer is driven over through the other tube into an evaporating dish. It need not all be driven over, since the graduation of the stem will indicate the amount, even if only a fraction has been blown over. But, if desired, the whole of it may be driven over as far as possible, and subsequently a fresh lot of ether may be poured on and separated in the same manner. This latter way is the one recommended in the above-named assay. The ethereal residue is dried at 105° C. and weighed.

Our correspondent states that he has used a similar apparatus, not graduated, for removing the ethereal layer from the aqueous liquid in assaying opium. The bulb tube which he uses is of such a size that the aqueous liquid, together with the alcohol, ether, and water of ammonia subsequently added, fills the bulb only about one-half. This permits active and energetic agitation, which so greatly promotes the separation of morphine. When the proper time has elapsed (six hours), he carefully fills up the apparatus with ether, pouring it on top of the ether already in the flask, inserts the stopper and tubes, and blows the ethereal layer over. He then pours on a little more ether and removes this in the same manner. Any adhering traces of morphine he removes by washing the tube with the first portion of the aqueous filtrate.

Our correspondent incidentally remarks that he is in the habit of rinsing the flask in which the morphine has been separated, and to the sides of which a good deal of it usually adheres, with the filtrate obtained by pouring the contents of the flask on the filter. [This is, however, not new.] The whole of the morphine may thus gradually be washed upon the filter without introducing any new portions of water, and it is only necessary to make the last washings with water.

APPARATUS FOR DETERMINING THE SOLUBILITY OF SALTS.

IN determining the solubility of salts at different temperatures, the greatest difficulty consists in filtering a sufficient quantity of the solution at the desired temperature. The following-described apparatus has been devised by Fr. Rüdorff to overcome this difficulty:

A little flask, A, about 4 Cm. high and 2 Cm. wide at the bottom—with ground neck and ground stopper—is fitted with a doubly perforated rubber cork carrying a narrow glass tube, C, and a filtering tube, D. The latter is contracted where it passes through the cork, and reaches only a short distance above it, its upper edge being ground smooth. A piece of fine linen is stretched over it, and a piece of rubber tubing slipped over which holds it in place. The projecting part of the rubber tubing is closed by a glass rod. The linen diaphragm acts as filter.

Rolff's Measuring Funnel.

Rüdorff's Apparatus.

If the solubility of a salt is to be determined, a saturated solution of it is prepared at a temperature higher than that at which the solubility is to be ascertained. This solution is prepared in a test tube of such size that the previously described apparatus may be inserted into it. The amount of solution must be enough to permit the apparatus (minus the glass rod) to be submerged. The test tube containing the solution is then introduced into a beaker containing warm water (or other suitable liquid), and standing upon a sand bath heated with a small flame. The contents of the test tube will gradually acquire the temperature of the water in the beaker, and the latter is carefully regulated by a thermometer. As soon as the desired temperature has been attained, the little apparatus is moved a few times up and down to equalize temperature, and, having been fully immersed, the glass rod is withdrawn for a few moments, so as to admit a little of the liquid of the test tube. The rod is then again inserted. In this way a few drops of the salt solution are filtered into the little flask.

The apparatus is now withdrawn, carefully washed on the outside, the cork with glass tubes removed—care being taken that not a trace of water or other liquid gets into the neck—and the glass stopcock inserted. The total weight of the flask and contents, less tare of flask, gives the weight of the salt solution. And the loss on drying (with stopper removed, of course) gives the amount of water.

If a series of these little apparatuses are at hand, one after another may be immersed in the test tube at varying degrees of temperature. In this way a curve of solubility may be constructed for any substance in a short time.—*Zeitsch. f. angew. Chem.*, 1890, 633.

Parataloid is the name given by Prof. Koch to his lymph.

The Composition and Constituents of Brandy and Rum.

W. FRESENIUS has had occasion to make an extended investigation of the physical and chemical properties of a number of samples of alcoholic liquors of known purity, and communicates the results, which are of considerable importance, since they show the necessity of altering the hitherto recognized standards, at least so far as this country is concerned.

Eight samples of French brandy were examined. Their specific gravity, at 15.5° C., varied between 0.9314 and 0.9393. Their percentage of alcohol by *volume* varied between 47.51 and 51.63. The following schedule represents the constituents of the eight samples, in 100 *grammes* of each:

Alcohol (deduced from the specific gravity), 40.15 to 44.00 Gm.

Alcohol (determined by distillation), 42.71 to 46.12 Gm.

Extract (determined by evaporating and drying 50 C.c. of the liquid for two and a half hours in a drying oven, the time being carefully observed in each case; a variation from it is liable to lead to discordant results), 0.461 to 1.499 Gm.

Mineral matters (ash, obtained by igniting extract), 0.004 to 0.021 Gm.

Free acid (calculated as acetic and determined by $\frac{1}{10}$ normal alkali), 0.026 to 0.089 Gm.

Matters reducing Fehling's solution:

(*a*) before inversion, 0.000 (three samples) to 0.771.

(*b*) after inversion, 0.000 (three samples) to 0.919.

(*c*) difference, stated as cane-sugar, 0.000 (three samples) to 0.617.

Regarding the detection of caramel, for which Amthor had proposed paraldehyde as a reagent, Fresenius shows that it is not altogether reliable. While it undoubtedly produces a colored precipitate in solutions actually tinted with caramel, yet it also produces varying small amounts of precipitate in some brandies known to be free from caramel.

Concerning the matters reducing Fehling's solution, Fresenius ascribes their source to the casks in which the brandy had been stored, since it was absolutely certain that no sugar had been purposely added to certain of the samples, although they gave reactions for it. They are probably due to tannin and certain coloring matters.

The figures obtained by Fresenius for *rum*, and arranged in the same rotation as those above given, are as follows:

Spec. grav., 0.8735 to 0.8811.

Alcohol volume per cent (from spec. grav.), 73.50 to 76.39.

Alcohol, volume per cent (by distillation), 73.28 to 77.00.

Constituents in 100 *grammes:*

Alcohol (from spec. grav.), 66.22 to 69.42.

Alcohol (by distillation), 66.02 to 69.97.

Extract, 0.339 to 0.680.

Mineral matters, 0.005 to 0.007.

Free acid, 0.089 to 0.139.

Matters reducing Fehling's solution:

(*a*) before inversion, 0.144 to 0.368.

(*b*) after inversion, 0.178 to 0.507.

(*c*) difference, cane-sugar, 0.005 to 0.132.

Prof. Fresenius appends to his report on the results of his examination an exhaustive review of the customary or available methods of defining, distinguishing, or judging the finer qualities of brandy and rum. We take from this those sections which are of more direct practical importance.

According to the generally prevailing notion, *cognac* (brandy) as well as *rum* and *arrac* (a liquor distilled from fermented rice in Java) are supposed to be pure distillates from their respective fermented mashes (wine, sugar, and rice). But it is quite certain that only a very minute proportion of the above liquors, as they appear in the market, actually corresponds to the above definition.

Regarding rum, it is stated by nearly all writers that its dark color is acquired by being long kept in casks. But this is not true. The deep-brown color alone is sufficient to disprove it. Moreover, Prof. Fresenius has received the assurance of those who are personally conversant with the whole process of rum manufacture, that this liquor is always now, and has always been heretofore, colored with caramel. The amount of coloring depends upon the country to which it is exported, some preferring a very dark and others a lighter tint.

One of the by-products of the distillation of rum is a residue left in the still, practically identical with caramel. No doubt it is this which is used for coloring. And the original idea of coloring the distillate may have been caused by the old custom of the original makers, who used primitive apparatus, in which the distillate was no doubt invariably colored by the mechanical spattering over of some of the contents of the still.

In consequence of this custom, it becomes necessary to regard a small proportion of caramel in *rum* as legitimate.

In the case of *brandy* the conditions are similar, but still different. The experiments of Prof. Fresenius have shown that even absolutely pure brandy will extract a comparatively large proportion of extractive from the casks. Much, of course, depends on the quality of the latter. Fauré, of Bordeaux, investigated this subject some forty years ago, and his results are being made use of even now throughout the cognac districts. Staves from the neighborhood of Limoges are regarded as the best for cognac casks. The nature and quality of the wood have a most decided influence upon the contents of the cask. Prof. Fresenius had special occasion to notice this, since he examined several casks filled with the identical brandy, in one of which the contents were rich in extract, deep in color, and appeared to be quite old, while in another they appeared to be sweeter, paler, and younger, but possessed a finer bouquet.

It is the custom to ascribe the depth of color of any brandy to the length of time it has been kept in the cask. A natural consequence of this is that younger brandies are artificially colored in order to impart to them this semblance of age. This addition is probably always practised in the case of the medium and lower grade brands, and, having become firmly established, must probably be accepted as a "commercial custom." If the brandy is otherwise genuine, the presence of a minute proportion of caramel will, therefore, scarcely deserve censure.

While the amount of extract naturally liable to be present in aged brandy is limited, it is becoming fashionable to improve the taste of brandy by the addition of a small proportion of sugar, which, of course, increases the extractive matter. As this addition is universally conceded to result in an improvement of the taste of the brandy, it cannot be objected to. The question is only whether cognac thus "improved" is still to be called or recognized as cognac or brandy, or whether it is to be classed among compounded liquors (cordials, liqueurs). Yet commercial custom has, up to the present, retained the name of cognac for the "improved" article.

The German customs authorities, however, often failed to accept this view. In consequence thereof French exporters adopted the plan of sending the pure, "unimproved" brandy by itself, and, separately from it, the requisite improving liquid (coloring matter, probably accompanied by certain aromatic essences).

In judging of the purity and genuineness of brandy and similar liquids, not only the addition of coloring matter and sugar is liable to raise a question of adulteration, but also the addition of *water* to reduce the alcoholic strength.

It has been shown to be practically impossible for the original distillers to always insure obtaining a uniform distillate. Since too high an alcoholic percentage could, naturally, only be reduced by allowing the brandy to remain very long in casks, and much loss would be incurred thereby, it is now conceded by some leading authorities (Roese, Fresenius), but not by all, that the addition of water, within certain limits, is legitimate.

Some of the most celebrated cognac manufacturers have begun to put their product on the market reduced to 25 to 30 per cent of alcohol by weight. They obtain for this brandy *the same price* as for the stronger one heretofore, and this brandy is actually preferred by certain medical authorities to any other.

A very important statement is made by Prof. Fresenius regarding the effect of *long storage* in casks upon the *alcoholic* strength of the contents. It is very generally assumed—*also in this country*—that long keeping in casks

causes a more rapid loss of water than alcohol, and that, therefore, the alcoholic percentage of the liquor increases by age.

He positively denies this, and takes occasion to criticise the proposal of the Pharmacopœia Committee of the German Pharmaceutical Association, who had recommended to require, in the new Pharmacopœia, a spec. grav. of 0.920 to 0.940, and 40 to 50 per cent of alcohol by weight, because—as they themselves stated—when brandy is kept in casks or in wide-mouthed vessels tied over with a bladder or parchment, it loses part of its water and the alcoholic percentage increases.

Prof. Fresenius points out that the committee probably had in mind the well-known fact that alcohol confined in a bladder becomes stronger from loss of water. But this is owing to the circumstance that water alone can reach the outer surface of the bladder by exosmosis, and thereby evaporates, while the alcohol passes through only very slowly.

In wooden casks, both alcohol and water are able to evaporate, and the former, owing to its greater volatility, passes off more rapidly. In a damp atmosphere this difference in rate of evaporation must become much more noticeable. And it is a recognized fact that cognac stored in damp cellars in cool localities, such as Germany, the London Docks, etc., loses its alcohol much more rapidly than in drier and warmer localities, such as the Charente (cognac district of France). In the latter the water evaporates more rapidly than in the cooler localities. But the rate of evaporation of the alcohol seems to be about the same in both cases. Since it has been observed that, though the alcoholic percentage may decrease, yet the total volume of liquid is but slightly altered, it is probable that the stronger alcoholic liquid can attract water from the air, which results actually in an *increase*, not a decrease, of water.

The diminution of alcoholic percentage in brandy under conditions such as prevail in the Charente amounts to about ½ per cent by volume.

While the "improvements" thus far outlined—addition of coloring matter, sugar, and water—are, to a certain extent, allowable, there is another manipulation which goes beyond the limit. This is the addition of *spirit* and the subsequent reduction with water, both of which are very commonly practised upon rum and arrac of the lower qualities [and also of those of brandy].

With this addition of spirit begins a class or series of changes which forms a gradual transition, indefinable as to exact limit, from the genuine to the adulterated brandy and to its absolute imitations, in which latter there is not even a trace of the genuine distillate.

In proportion as the addition of spirit increases and the genuine liquor decreases, there is a diminution of the aroma, which is usually replaced by so-called cognac essences or other aromatic compounds. Moreover, it becomes necessary to add more coloring matter and sugar.

In a note appended to this paragraph, Prof. W. Fresenius points out that the aroma is liable to differ very greatly even in genuine and unadulterated liquors, owing to the difference of soil (in the case of cognac, the kind of grape), the year of growth, and other causes. Besides, the mode of distillation, cellarage, age, etc., are of great influence. The grape originally used for the manufacture of brandy in France was that known as *Folle Blanche*. In more recent times, however, other kinds are used, and furnish a product more or less deficient in aroma. An interesting fact has been communicated to Prof. Fresenius by Mr. Schmoelder, namely, that the best cognac is not always obtained from the best vintages or "wine years," but that even mediocre and inferior vintages yield the best cognac, probably for the reason that a less quantity is required to prepare brandy from a wine richer in alcohol than from one of lower percentage, in which latter the aromatic constituents are present in equal quantity, so that a larger proportion of them finds its way into the distillate.

A portion of the paper is devoted to the discussion of the question whether a brandy which has been compounded or improved by the addition of aromatics and *then* distilled, or has otherwise been manipulated, can justly be regarded as a "distillation product from wine." Some authorities seem inclined to so regard it, while others, among them Fresenius, are of different opinion. The last-named authority also points out—what is otherwise well known—that the judgment of a competent expert regarding the odor and taste of such liquors as brandy, rum, and arrac, affords a better and more accurate criterion of their genuineness and quality than can be obtained by chemical analysis, which, while capable of demonstrating quantitative fluctuations of constituents readily determinable, is insufficient to reach the aromatic and other finer constituents.—After *Zeitschr. f. anal. Chem.*, 1890, 283.

Improved Method of Estimating Glucose.

For the estimation of sugar, the solution I use is Fehling's solution, with the addition of a small quantity of potassium ferrocyanide (yellow prussiate of potash), which is added to prevent the precipitation of the red oxide of copper. By this procedure (for which we are indebted to Causse, *Bulletin de la Société de Chem.*, 1889, p. 625) we are better able to see the discharge of the blue color of the copper solution. The apparatus consists of a short burette, terminating in a comparatively wide delivery tube bevelled at the end. The delivery tube of the burette passes through a cork in the neck of a flat-bottom flask of about four ounces' capacity. Another tube, bent at right angles, passes through the same cork, for the escape of steam during the boiling. The burette is graduated in cubic centimeters, and also with a second graduation, representing grains per fluidounces, when 5 C.c. of Fehling's solution are taken.

The process is performed as follows:

Fehling's solution is poured into the burette until it is filled exactly to the 5 C.c. mark, which on the burette is marked F. A 1 to 20 solution of potassium ferrocyanide is added until the 7 C.c. mark is reached. The stopcock is now opened and the liquid allowed to run into the flask. The burette is filled with water, and this is allowed to flow into the flask. The apparatus is now put upon a sand bath or other source of heat, and allowed to come to a boil. The burette is now filled to the zero mark with the urine to be examined, and added carefully until the blue color of the solution in the flask is discharged. The exact point is easily seen. It is only necessary to read off the grains of sugar per fluidounce on the left-hand graduations.

In most cases of diabetes it will be necessary to dilute the urine to about 5 grains per ounce after a preliminary test. This is easily done in the burette. We may simplify the preparation of the solution by adopting the following formula for the preparation of Fehling's solution, which is now usually made in two parts and mixed when needed for use:

Solution No. 1.		Solution No. 2.	
Copper Sulphate	34.65 C.c.	Rochelle Salt	1.73 C.c.
Dist. Water	500.00 C.c.	Caustic Soda	200.00 C.c.
		Potass. Ferrocyanide	50.00 C.c.
		Water	500.00 C.c.

For use mix equal quantities of these two solutions, measured out with the burette. I have had but a few months' experience with the keeping power of solution No. 2, but, so far as I have tested it, there is no reason for not adopting this formula.—E. H. Bartley, M.D., in the *Brooklyn Med. Journal*, November, 1890.

Alcohol in Grapes and Grape Juice.

"Amplosia" is the name given to a "pure, unfermented grape juice" which is manufactured by an apothecary in Edenkoben, Germany. It has been analyzed by Fresenius and Eckenroth, both of whom found in it minute traces of alcohol (about one-quarter grain in 100 C.c.), which is, however, not added on purpose, but appears to be a natural constituent. Alcohol has been found, even in larger proportion than that before mentioned, in freshly pressed grape juice (by Fresenius), and Bernbeck and others have reported its presence in the ripe grapes still hanging on the vine.—After *Pharm. Zeit.*

Notes on Antipyrin.

FROM a graduating thesis by Charles W. Hollis, presented to the School of Pharmacy of the University of Michigan, we take the following (after *Pharm. Era*).

Some writers (F. Gay and H. Fortune, *Am. J. Pharm.*, 1888, 60, 413) state the melting point of antipyrin to be quite variable, some samples running as low as 105°, 106°, 107° C., the variation being due to the amount of moisture absorbed. The samples procured were found to be very nearly alike as to melting points, there being only one degree variation.

The first melted at 112° C. and the second at 111° C., the glycerin bath being used in both cases. The first sample was then taken and exposed to a moist atmosphere, the apparatus used being a large beaker containing a sponge well saturated with water, above which the antipyrin was suspended at a suitable distance out of direct contact with the water, the whole tightly closed to prevent evaporation and allowed to remain for about a week, at the end of which time the melting point was found to be 109° C., a loss of 3° C., thus leaving little doubt as to the cause of the variation above mentioned.

At a temperature between 111° C. and 115° C. it begins to volatilize (Pharm. Aust., ed. vii., 1889), and if the temperature is raised still higher a decided odor is given off. The melted crystals were found to deposit in shining pearly plates on cooling, and, when burned on a platinum foil, to give a bright sodium flame, and were completely consumed, no perceptible residue remaining.

If carbolic acid is added to a moderately dilute aqueous solution, an oily liquid separates out, the oily portion settling to the bottom while a milky layer remains at the top (Vulpius). An oily mass is formed (according to P. Vigier) when antipyrin and sodium salicylate are mixed in dry form, the decomposition taking place within a few hours, and on testing the oily mass with litmus paper it is found to be alkaline. The aqueous solution of the two substances was unaffected, no oily substance separating on standing, but on testing it was found to be slightly acid.

Antipyrin is incompatible with sweet spirits of nitre, a marked coloration taking place, in some cases immediately, but in others a longer time is required, some samples tried by the writer taking twelve to twenty-four hours to produce the change. The writer was unable to find any figures giving the specific gravity of antipyrin, and as its solubility renders it rather difficult to select a suitable solvent, it was decided to use its saturated solution at 25° C., the specific gravity of which was found to be 1.0995, and from this was calculated the specific gravity of the dry substance, found to be 1.0782. The following are the reactions of antipyrin with different chemicals and reagents. The general alkaloidal reagents, excepting Mayer's reagent, produce precipitates in moderately dilute solutions (1 :100):

Picric acid gives a yellow precipitate. Ferrocyanide of potassium gives a white precipitate. Mercuric chloride gives a white precipitate. Tannic acid gives a white precipitate. Nessler's reagent gives a dirty white precipitate. Iodine with potassium iodide gives a chocolate-colored precipitate. Phosphomolybdic acid gives a yellow precipitate.

Heating antipyrin with strong nitric acid in a porcelain dish until reaction commences, and then removing the lamp, gives, after the reaction has ceased, a fine purple-colored liquid and residue, and, on the addition of water and filtering, a red filtrate and a violet-colored residue or precipitate remain (D. Lindo). An aqueous solution is also turned red with a mixture of equal quantities of nitric and sulphuric acids, the same reaction being produced if this acid mixture is added to its alcoholic solution; but a green precipitate, insoluble in water, is formed upon the addition of a few drops of water. In a solution of ether and alcohol (1 :2) these reactions do not occur until the ether has evaporated (Yacoubian).

A very simple and reliable test is to add a dilute solution of potassium nitrite to a suspected solution of antipyrin, and if it is present a green-colored solution is obtained upon the addition of a few drops of concentrated sulphuric acid. The writer tried a test used by M. Manseau (*Pharm. Era*, 1890, 40), but instead of using 14.39 Gm. of iodine to the liter as was proposed, a $\frac{1}{10}$ N solution was used. One Gm. of antipyrin was dissolved in 100 C.c. of distilled water, and to this 10 C.c. of starch water were added (1 : 100).

The whole was kept at a temperature between 40° to 42° C., according to direction, and the iodine was added drop by drop under constant stirring until there was a persistent blue tint. The average number of cubic centimeters for four titrations was 5.91; but the test was not satisfactory, as it was very uncertain when the required color was reached, and if the temperature was not watched very carefully the number of cubic centimeters was increased to quite a considerable extent. At 50° C. it required 6.3 C.c., and on raising the temperature to 65° C. the color was entirely destroyed and took nearly 1 C.c. more to restore the former color. A very reliable test, after Ed. Blumenbach (see AMER. DRUGG., 1887, 168), and one generally used, is the ferric chloride reagent. When added to dry crystals or powder a dark reddish-brown color is produced, and when the test solution is added to its aqueous solution the following colors are produced:

1 : 100—reddish-brown color.
1 : 10,000—light brown color.
1 : 50,000—yellowish color.

Two drops of fuming nitric acid added to 2 C.c. of a 1-per-cent solution of antipyrin cause a green color, and after heating to boiling, another drop of the reagent gives a red color (Ger. Ph. Commission).

The following five reactions were taken from Dr. Arzberger (*Pharm. Rundsch.*, 1890, 68) and verified:

Twenty drops of a $\frac{1}{10}$ N solution of mercuric chloride added to 10 C.c. of a 5-per-cent solution of antipyrin produce a white, amorphous precipitate, which dissolves upon heating, and upon cooling precipitates again.

Passing chlorine gas into an aqueous solution, a white, flocculent, faintly red precipitate is formed, which is difficultly soluble in water, but soluble in, and crystallizing from, alcohol in small white crystals.

Bromine water added to its aqueous solution causes a yellowish-white, amorphous substance to adhere to the walls of the test tube, which dissolves upon application of heat, with partial decomposition, and upon cooling it is again precipitated, easily soluble in alcohol. A few drops of tincture of iodine added to its aqueous solution cause a reddish-brown, amorphous precipitate to be deposited, which upon application of heat partially decomposes and dissolves to an almost colorless solution, but partially precipitates again on cooling.

A tough, resinous mass is formed when a few crystals of iodine are rubbed with an aqueous solution; this is easily soluble in alcohol and again precipitated upon the addition of water. The only direct test for impurities which the writer could find is given by the Ger. Ph. Commission, viz., the solution in 2 parts of water should be neutral and colorless, or faintly yellowish, free from sharp taste, and not changed by solution of hydrosulphuric acid, this reagent showing the absence of metals.

SUMMARY.

Must be kept in well-stoppered bottles. Occurs in white, crystalline, lustrous tablets or powder, gradually assuming a slightly yellowish tinge on exposure to light; crystallizes from ether in thin plates or scales, and from water and alcohol in needles, if the operation is hastened; but if a saturated solution is allowed to evaporate spontaneously, well-defined crystals of the monoclinic system are formed. Its aqueous solution is neutral to litmus paper and solutions of litmus. If carbolic acid is added to its aqueous solution, an oily liquid separates and settles at the bottom, while a milky layer remains on top.

At about 111° to 113° C. it melts to a clear liquid, which solidifies to shining pearly plates on cooling; and when burned on a platinum foil, it gives off a bright sodium flame, no perceptible residue remaining.

It volatilizes at a temperature between 111° and 115° C., and if the heat is raised still higher a decided odor of partially decomposed antipyrin is given off. It has a mild, bitter taste, and a very faint if any odor, dissolving in its own weight of alcohol and water, one and one-half times its weight of chloroform, and in about

fifty times its weight of ether, the temperature being at 15° C. It is also very soluble in amylic alcohol, benzin, glacial acetic acid, and all mineral acids. It has a specific gravity of 1.0782, and its saturated solution at 25° C. has a specific gravity of 1.0995. The general alkaloidal reagents, excepting Mayer's reagent, produce precipitates in moderately dilute solutions. A test solution of ferric chloride added to dry antipyrin, or to a moderately dilute solution (1 : 1,000), gives a decidedly red color. Potassium nitrite, with dilute sulphuric acid or nitrous acid, gives a bluish-green color in the dilute and a green crystalline precipitate in concentrated solutions.

Two drops of fuming nitric acid added to 2 C.c. of a 1-per-cent solution cause a green color, and after heating to boiling another drop of the reagent gives a red color. A few drops of tincture of iodine added to its aqueous solution cause a reddish-brown, amorphous precipitate to deposit, which upon the application of heat partially decomposes and dissolves to almost a colorless solution, but partially deposits again.

The solution in 2 parts of water should be neutral and colorless or faintly yellowish, free from sharp taste, and not changed by solution of hydrosulphuric acid.

A Rapid and Easy Method of Estimating Urea in Urine.

THIS apparatus was designed for the use of physicians rather than chemists. The process is a modification of the well-known hypobromite process, by which the urea is decomposed, with the formation of $CO_2.H_2O$ and free nitrogen. The first two of these remain in solution, while the nitrogen escapes and is measured. The hypobromite solution is usually prepared by dissolving 25 C.c. of bromine and 100 Gm. of sodium hydroxide in 250 C.c. of water. To avoid this tedious and disagreeable preparation, I prepare the solution as needed by mixing, in the apparatus, a 20-per-cent solution of potassium bromide and sodium hypochlorite (Labarraque's solution) in the proportion of 1 of the former to about 3 of the latter. The result of this mixture is a solution of sodium hypobromite and potassium chloride answering in every way the requirements of the process. The two solutions keep well, while the hypobromite solution does not.

The apparatus consists of two parts: first, a graduated pipette, delivering 1 C.c.; second, a graduated tube, about 1 Cm. in diameter and 30 Cm. long, closed at one end and graduated from this closed end throughout its entire length. The graduation is made as follows: A standard solution of urea is prepared containing 10 grains to the fluidounce. With an ordinary gas tube it was found that 1 C.c. of this solution gave 8.2 C.c. of nitrogen. This is about the average urea strength of normal urine. Each 8.2 C.c. on the new tube is then divided into ten principal divisions, and each of these into four smaller divisions. Each of the principal divisions then represents grains per fluidounce when 1 C.c. of the urine is taken.

By a similar method the graduation may be made to represent grammes per liter. The process is conducted as follows:

Holding the ureometer in the left hand, pour in enough of the 20-per-cent solution of potassium bromide to fill it to the fifth division; then add hypochlorite solution to the eighteenth or twentieth mark. The tube is now inclined and water added to the twenty-fifth division. With the small pipette 1 C.c. of urine is now added, allowing it to run down the side of the tube so that it shall mix with the water floating upon the heavier solution below. The open end of the ureometer is now firmly closed with the thumb and its contents thoroughly mixed by inverting it a few times. When the effervescence ceases, which usually takes about two or three minutes, invert and read off the height of the liquid in the tube.

The thumb is now removed under water, the tube depressed to bring the liquid in the tube to a level with the water in the outer vessel, and a second reading taken. The difference between the two readings gives at once the number of grains of urea in each fluidounce, or grammes per liter, according to the construction of the scale. This number multiplied by the number of ounces passed in twenty-four hours in the one case, or liters in the other, gives the amount of urea passed in twenty-four hours, which should be about 500 grains, or 30 to 33 Gm. The instrument may be had of Eimer & Amend.

Experiments made to determine whether the apparatus could be used to determine total nitrogen, after decomposition in the Kjeldahl flask with sulphuric acid, gave good results.

Experiments with ammonium chloride showed that but one-third of the nitrogen was set free from this salt, while the sulphate seems to yield all of its nitrogen.—E. H. BARTLEY, M.D., in *Journ. Amer. Chem. Soc.*, 1890, 283.

Note on the Estimation of Urea by the Hypobromite Method.

Now that the estimation of urea has become a feature in all urine analyses, the following method of calculating results may be found useful to pharmacists who practise analytical chemistry. To those who have not had much experience, the following résumé may be of service.

Method of Analysis.—Fill an Allen's nitrometer with strong brine and arrange as for the analysis of spirits of nitrous ether; place 10 C.c. of the urine, previously freed from albumin, in the cup, turn the tap, and run into the burette exactly 5 C.c., letting the remainder run to waste; pass water through the cup, and tap to thoroughly cleanse them from urine; readjust the tap, and, having placed 10 C.c. of the hypobromite of soda solution in the cup, run 7 or 8 C.c. boldly into the burette, allowing excess to run to waste as before. When the action has somewhat abated, pinch the connecting rubber tubing and slightly shake the burette, allowing it to stand for two or three minutes. Place burette and reservoir side by side, so that the level of the brine in both is equal, read off the number of cubic centimeters of nitrogen, and calculate as under.

The Reagent.—It is essential that the solution of hypobromite should be quite fresh. A convenient plan is to keep a solution of NaOH and add the quantity of bromine as required. The following form may be used: Dissolve 200 Gm. of caustic soda in 500 C.c. of water, and to every 10 C.c. of this solution as required add by pipette 1 C.c. of bromine to form reagent.

Calculation of Results.—Let N denote the number of cubic centimeters of nitrogen evolved by 5 C.c. of sample.

Now, Russell and West proved by experiment that 5 C.c. of a 2-per-cent solution of urea invariably gave 37.1 C.c. of nitrogen at ordinary pressure and temperature; in other words,

$$37.1 \text{ C.c. } N_2 = 0.1 \text{ Gm. urea};$$

therefore, to obtain the amount of urea in 5 C.c. of the urine, we have

$$37.1 : 0.1 = N : x$$

$$\text{Hence } x = \frac{0.1\,N}{37.1} \text{ or } N \times 0.00269.$$

Therefore, if we multiply the number of cubic centimeters of nitrogen evolved from 5 C.c. of urine by the fraction 0.00269, we will find the quantity of urea contained therein. The percentage of urea is found by multiplying the cubic centimeters of nitrogen with 0.0538. [We have substituted the above method of calculation for that of the author, which is much less perspicuous.—ED. AM. DRUGG.]

To obtain equivalent grains per ounce, multiply percentage by 437.5 and divide product by 100.—S. HENRY SMITH in *Pharm. Journ.*, October 11th.

Trichloracetic Acid as a Caustic.

TRICHLORACETIC ACID ($CCl_3.COOH$) has been found by Dr. A. H. Ehrmann very useful as a local caustic in diseases of the nose and throat, presenting the advantage over chromic acid that its action remains localized and is more persistent. The acid is sent out in colorless rhombohedric crystals, having a slightly pungent odor, melting at 52° and boiling at 195° C., readily soluble in water and alcohol, and deliquescent in air.—*Pharm. Journ.*

New Volumetric Estimation of Phenol, Thymol, Naphthol, and Salicylic Acid.

J. MESSINGER and G. VORTMANN, who are the discoverers of the now well-known antiseptic **aristol** (an iodized derivative of thymol), have found that the principles of the process by which aristol and similar compounds are obtained—viz., treatment with iodine of a strongly alkaline solution of thymol, etc.—may be applied to the quantitative estimation of the above-named substances, and no doubt also of others chemically allied to them.

The requisite volumetric reagents are, a $\frac{1}{10}$ normal solution of iodine and a $\frac{1}{10}$ solution of sodium hyposulphite.

In estimating **phenol** or carbolic acid, the latter must be in alkaline solution. For each molecule of phenol there will be consumed 6 atoms of iodine. The mode of proceeding is as follows: 2 to 3 Gm. of the phenol to be estimated are dissolved in soda so that there are at least 3 molecules of soda present for every molecule of phenol. The solution is then diluted to 250 or 500 C.c. Of this an exactly measured quantity of 5 or 10 C.c. is put into a small flask, the contents heated to about 60° C., and enough of the $\frac{1}{10}$ iodine solution added to render the liquid strongly yellow by excess of iodine. Upon agitation a bright-red precipitate will fall. After the liquid has cooled, it is acidulated with dilute sulphuric acid, diluted to 250 or 500 C.c., and a definite portion (say 100 C.c.) titrated with $\frac{1}{10}$ hyposulphite in order to ascertain the excess of iodine. The actual amount of iodine consumed (in grammes), multiplied by the factor 0.123518, gives the quantity of pure phenol. The factor is derived thus:

$$\frac{\text{1 mol. phenol}}{\text{6 at. iodine}} = \frac{93.78}{759.24} = 0.123518$$

The analytical data furnished by the authors show that this method of estimation is very satisfactory, differences not exceeding 1.2 per cent.

Thymol can be similarly determined, but no heat is required. The precipitate caused by iodine has a brownish-red color. Each molecule of thymol requires 4 atoms of iodine. The amount of iodine actually consumed, multiplied by 0.2956772, indicates the quantity of thymol.

From 0.1 to 0.3 Gm. of thymol is dissolved in soda, so that there are at least 4 molecules of soda for 1 of thymol. The solution is then made up to 250 or 500 C.c., and, except that no heat is applied, treated as in the case of phenol.

Naphthol (*beta*).—This yields, under the same conditions, a dirty-green precipitate. Here also 4 molecules of soda must be taken for every 1 molecule of naphthol. The amount of iodine actually consumed must be multiplied by the factor 0.37843106. In the case of naphthol, the solution must be heated to 50° to 60° C. Otherwise the method is the same.

Salicylic Acid.—This may be estimated either alone or when mixed with benzoic acid, the latter not entering into reaction. In this case, also, 4 molecules of soda must be taken for every molecule of the acid. On adding the $\frac{1}{10}$ iodine solution to the solution of the acid warmed to 50° to 60° C., a precipitate should not be formed at once. Only after iodine is present in excess, and the liquid has been again slightly warmed, is there produced a bright-red precipitate, which increases in quantity after acidulation. If too small a quantity of alkali was present, a yellowish-white precipitate is formed before iodine is present in excess. Should this happen, more alkali is added until this precipitate disappears, after which the addition of the iodine solution is continued. The factor with which the quantity of iodine actually consumed must be multiplied is 0.18132606.

The alkali which is used in these processes must be free from nitrite. If not, the latter must be determined separately by means of the $\frac{1}{10}$ iodine solution, and the proper correction made when the alkali is employed.

Calculations of the results obtained by the above processes may be saved by the following consideration:

Let f denote the factor with which the quantity of iodine must be multiplied in each case, and t the titer—that is, quantity of iodine in 1 C.c.—of the iodine solution; then the product $f \times t$ at once shows the quantity of phenol, etc., in grammes, which corresponds to 1 C.c. of the iodine solution.—After *Berichte*, 1890, 2753.

English as She is Wrote.

THE *Chemist and Druggist* quotes a choice specimen of Continental English from a so-called "trade journal" brought out by a German firm in Brussels, which our readers will no doubt enjoy:

It is to be a universal review of modern inventions "vulgarizing of the practical inventions industrial and commercial publicity"; and it appeals to advertisers for support on the grounds, among others, that, "indeed, a newspaper treating only one industry should be readed only by the specialists, while our Revue, diffused in all the branches, is indistinctly (sic) readed by all the traders which may purchase engines, frames, etc.; instal the electricity, use chemical products which occupy themselves of photography, etc. We permit ourselves of offer you our publicity which is very efficacy, our working being 10,000 numbers sent to the traders of the country and to the principal firms of the foreign."

[The translation has evidently been made by a Frenchman, since it teems with gallicisms.—ED. AM. DRUGG.]

The Estimation of Nitrites in Potable Waters.

PROBABLY no analyst feels that he has made a complete examination of a water unless he has at least made a qualitative test for nitrites, and if he finds indications of their presence he justly regards the water with suspicion, but uncertain what further inference to draw, as a quantitative examination is rarely made. Though this quantitative analysis, therefore, does not seem to be a matter of much importance in the present state of our knowledge, a series of experiments I am now making on the changes in composition of certain waters, by keeping under varied conditions, lead me to believe that ere long the study of these changes will be of great aid in enabling us to judge of the quality of a water, and especially of those waters which at the present time the chemist or medical officer can only state to be suspicious. One of these changes, and one of the most easily followed, is the variation in amount of nitrous nitrogen. As an example I will quote that of the most extreme case I have yet met with. A water which from a mere chemical analysis would have been passed as "usable," when examined soon after drawing from the pump showed no trace of nitrites. Three days after it contained no less than 35 parts of nitrous nitrogen per liter, and on the sixth day after it was again free from nitrites.

Other changes proceeded *pari passu*, and these, together with a bacteriological examination, proved the water to be seriously contaminated.

It was when commencing this investigation that the want of a simple and reliable quantitative test for nitrites made itself felt.

The metaphenylene-diamine and the naphthylamine tests were fairly tried, but did not answer my purpose, neither did titration with potassium permanganate. In working out the process for determining the amount of dissolved oxygen in water which I described early this year in a paper read before the Chemical Society, the action of nitrous acid on potassium iodide in the presence of a varying proportion of free oxygen was determined, and the results led me to believe that after all the old potassium iodide and starch test for nitrites could be made a reliable colorimetric quantitative one for water analysis. The results of my experiments having this as their object may be summarized as follows:

1. With the same proportions of acid, starch, and potassium iodide, the rapidity with which the blue tint is developed, and the depth of tint, vary with the degree of oxygenation of the water.

2. The depth of tint increases with the time which elapses between the addition of the reagents and the observation. This is due to the fact that the NO liberated is acting continuously as a carrying agent between the oxygen dissolved in the water and of the air in contact with the surface of the fluid, and the hydric iodide, liberating an equivalent of iodine corresponding to the oxygen carried.

3. The effect of temperature is such that comparisons cannot be made unless the fluids are within 2° or 3° of the same temperature. Thus, *e.g.*, at 65° F., in very weak

solutions, the color is not developed so rapidly as at 60° F., *cæteris paribus*.

4. With the same proportions of starch and iodide, and in samples fully oxygenated, etc., the coloration varies with the amount and nature of the acid used.

5. The amount of potassium iodide added affects the result considerably. The larger the proportion of iodide, within certain limits, the greater the rapidity of the reaction.

6. The quantity and nature of the starch solution are also factors requiring recognition. If too large a proportion of starch be added, a marked reddish tint is first developed instead of the blue tint, and this reaction is still more marked if the starch solution has begun to change by keeping.

7. When all the above factors are constant, then the rapidity with which the blue tint is developed, and the depth of tint, vary directly with the amount of nitrite present in the water.

I need not trouble you with the account of the numerous experiments upon which these conclusions are based, nor of the further investigation conducted to ascertain how the information so obtained could be made available for rendering the iodine and starch reaction reliable as a quantitative test. I will merely give you now an account of the reagents required, and the mode of conducting the analysis which I have found to give the most satisfactory results.

REAGENTS.

1. *Solution of Starch and Potassium Iodide.*

Starch in powder	0.2 Gm.
Caustic Potash	1.0 "
Potassium Iodide	2.0 "
Water	200 C.c.

Add the starch to 10 C.c. of water, and when uniformly diffused add the caustic potash. Dissolve without the aid of heat, and add the remainder of the water and the potassium iodide. Strain or filter. This solution keeps for months without appreciable change. One C.c. is required for each determination.

2. *Dilute Sulphuric Acid.*

Pure Sulphuric Acid	1 vol.
Distilled Water	3 vols.

This is the same strength as used for the permanganate test, and I always employ it for both purposes.

3. *Solution of Sodium Nitrite.*

Sodium Nitrite	0.493 Gm.
Water	1 liter.

Dissolve.

One C.c. = 0.1 Mgm. nitrogen.

Apparatus.—Two or more 50 C.c. Nesslerizing cylinders.

Process.—Shake the sample of water vigorously in a bottle only partially filled, to saturate with air; pour 50 C.c. into the cylinder, and add 1 C.c. of the starch and iodide solution, and afterwards 1 C.c. of the dilute acid; stir. Assuming the temperature to be about 60° F., if a dark blue tint develops instantaneously the water contains more than 1 per million of nitrous nitrogen. If it becomes blue in a few seconds, it contains about 0.1 per million. If it requires more than ten seconds to develop, it contains less than this amount. If the blue color appears instantly, the water must be diluted with known proportions of nitrite-free water (saturated with air) until it is found by experiment that the color takes a few seconds to develop.

With a very little experience the approximate amount of nitrite present can be ascertained with considerable precision by these simple preliminary experiments. Now prepare a standard solution of sodium nitrite by diluting 1 C.c. of the strong nitrite solution with 200 C.c. of water. One C.c. of this weaker solution diluted to 50 C.c. corresponds to 0.01 Mgm. nitrous nitrogen per liter.

Measure into the Nessler glasses varying quantities of this dilute nitrite solution and fill up with water. Now take 50 C.c. of the water to be examined, or of the diluted water if dilution were found necessary, and to each add successively 1 C.c. of the starch and iodide solution and dilute acid, and note how the blue tint develops. If none of the solutions correspond with the water, a fresh series must be prepared. In this way, in a very few minutes, the amount of nitrite in any sample of potable water can be easily obtained with a very considerable approach to accuracy.

Since I commenced employing this test I have analyzed over 180 samples of water, 51 of which contained nitrites varying from 0.005 to 3.4 parts nitrogen per million; and I have had no reason to suspect inaccuracy from the interference of other constituents in any single case.

To render the process more intelligible I will give details of two determinations. Two solutions were prepared for me by an assistant and marked "*a*" and "*b*" respectively.

(*a*) Fifty C.c. + reagents gave a blue tint in about ten seconds. It was therefore about the proper strength for estimation.

Ten C.c. of the dilute nitrite solution were diluted to 50 C.c. and compared with the sample. The color seemed to develop a little more rapidly, but the difference was not very marked. Three solutions were prepared by diluting 5, 7, and 9 C.c. respectively of dilute nitrite solution to 50 C.c.

5 C.c. = 0.05 N per million; too weak.
7 C.c. = 0.07 " "
9 C.c. = 0.09 " too strong.

Another solution containing 0.08 N per million was then made and compared with the sample; the blue tint developed a little more rapidly. The strength was certified to be 0.075 N per liter. The actual strength was 0.07 per liter.

(*b*) Original water gave a dark blue instantly.

Diluted to $\frac{1}{10}$ a pale blue instantly.

Diluted $\frac{1}{25}$ color developed in a few seconds.

Compared $\frac{1}{25}$ with 0.05, too weak; and with 0.10, little too strong.

Now compared with 0.08—too weak.
" " " 0.09—about right.
" " " 0.10—too strong.

0.09 + 25 = 2.25 N per liter. The actual strength was said to be 2.5 N per liter.

The following results may also be quoted as fair examples of the accuracy obtainable:

	Nitrous Nitrogen per liter.	
	Present.	Found.
1	0.1 per million.	0.10 per million.
2	0.625 "	0.65 "
3	0.625 "	0.625 "
4	0.093 "	0.095 "
5	0.01 "	0.01 "
6	0.05 "	0.05 "
7	0.125 "	0.13 "

The time occupied by a determination is usually about five minutes, the reagents are easily made and preserved, and the necessary conditions easily observed.

I can, therefore, recommend the process to such as may desire at any time to estimate the nitrites in potable waters.—John C. Thresh in *Pharm. Journ.*, September 20th.

The Action of Cod-Liver Oil.—Drs. Gautier and Mourgnes, in a recent communication to the Academy of Sciences, discuss at some length the reasons why cod-liver oil is superior to other fats as a therapeutical agent, and arrive at the following conclusions: 1. It is more easily assimilated, owing to its containing free fatty acids and some biliary matters which render its emulsion specially easy when it comes in contact with the pancreatic juice. 2. It is rich in phosphates, phosphoric acid, lecithin, and phosphorus in organic combination; the phosphorus, especially in the last-mentioned form, is very readily assimilated to form protoplasm, and thus nutrition is greatly stimulated. The small amounts of bromine and iodine being also present as organic compounds exercise a beneficial influence on the general metabolism. 3. The alkaloids present—butylamine, amylamine, morrhuine—and morrhuic acid stimulate the nervous system, increase the amount of sweat and urine, and act as a nerve tonic.—*The British Medical Journal.*

Oxynaphthoic Acid.

THIS acid has been reported by Luebbert to have nearly five times the antizymotic power of salicylic acid. It is not used internally, but only as a disinfectant, either for the toilet or for wounds and purulent cavities. Helbig has used cotton containing 1.75 per cent of the acid. He prepared it by dissolving 3.5 parts of the acid in 250 parts of alcohol, adding 50 parts of glycerin, tinting the solution with fuchsin, and then impregnating 200 parts of cotton with the whole liquid. By exposure in a warm room the alcohol will evaporate.

The acid is prepared by starting from alpha-naphthol sodium, and passing a current of carbonic acid gas through it, under pressure, at a temperature between 120° and 140° C. The resulting sodium salt of the new acid is then decomposed by a mineral acid.

Hydrofluoric Acid as an Antifermentative.

THAT hydrofluoric acid is a powerful antifermentative has long been known, but a practical use of this property has until recently been made only on a small scale. Some years ago an English analyst proposed to preserve specimens of milk, intended for analysis, by adding to them a minute quantity of hydrofluoric acid, which was, indeed, found to be entirely efficacious. Effront has now made use of this fact for preventing the development of too large an acid fermentation in mashes from which spirit is to be distilled. It has been found that the formation of lactic acid can thus be either retarded or entirely suppressed, and that of butyric acid is still more energetically resisted. In consequence of this, the alcoholic distillate is found to be much purer and less contaminated with odorous principles, fusel oil, etc.

Detection of Sulphuric in Chromic Acid.

CHROMIC ACID is now supplied by several foreign makers in an exceedingly pure condition, being practically free from sulphuric acid, the presence of which heretofore caused the commercial chromic acid to be deliquescent. The last German Pharmacopœia introduced the pure acid, and this will no doubt be done also by others. The test for absence of sulphuric acid is given as follows by the authority just quoted: "The aqueous solution of chromic acid (1 in 100), when acidulated with hydrochloric acid, must not be altered by solution of nitrate of barium." Dr. H. Warnecke now points out (in *Pharm. Zeitung*) that this test is misleading, since notable quantities of sulphuric acid may thus be overlooked. Barium *chloride*, not nitrate, should have been directed. A chromic acid solution contaminated with sulphuric acid, so that the above test (with barium nitrate) will not show it even on standing for several hours, will at once become turbid if barium chloride is used.

Preparation of Absolutely Pure Hydrobromic Acid.

IN the course of a research on the atomic weight of copper, Theodore W. Richards had occasion to prepare bromide of copper in as pure a state as could possibly be accomplished, and for this purpose it was necessary to prepare not only metallic copper as free from other elements as possible, but also perfectly pure hydrobromic acid. The copper does not concern us here, though we may state that it was impossible to obtain it of absolute purity. But the contamination, visible even to the naked eye, upon the galvanically separated copper film was so minute that it did not affect the results. Regarding the acid, we quote the author's own words (after *Chem. News*, January 9th):

The next step taken was the preparation of hydrobromic acid pure enough to serve as the basis of research. The acid was made from pure potassic bromide and sulphuric acid, according to the method recommended by Dr. Squibb. It was then purified by repeated fractional distillation, at first in a large platinum retort, and afterward in one of glass, it having been ascertained that the gold used as a solder in the former apparatus was attacked during the process. It was subsequently found that the action of the acid even upon glass was not imperceptible; but as the same retort was used in all later distillations, and as the glass was of good quality, this unavoidable cause of impurity was reduced to a minimum. The acid was distilled in all ten times—seven times over potassic bromide, twice over silver bromide, and once alone—each time the first and last portions of the distillate being rejected.

A specimen of the wholly colorless product was preserved for over a year without perceptible change.

The purity of this acid was checked by combining it with a known quantity of absolutely pure silver, specially prepared for the purpose.

It is, of course, unnecessary to employ acid of such a degree of purity in medicine. Nevertheless, the author's method may be wholly, or at least partly, followed when an acid of special purity is required. It is interesting to note that the author observed the acid to act slightly upon glass.

An Improved Method of Estimating Theine (Caffeine) in Tea.

G. L. SPENCER has found that all the existing methods for estimating theine in tea are capable of improvement. He remarks, quite correctly, that the quantity of theine is no reliable criterion of the value of tea to be used for beverage. Nevertheless, it will often aid in showing the presence of exhausted or spurious tea.

The author's method is but little shorter than that devised by his predecessors, but he claims for it greater accuracy. He describes it as follows:

Transfer 3 Gm. of very finely powdered tea to a 300-C.c. flask; fill the flask with hot water nearly to the neck; add a small fragment of tallow to prevent foaming; heat gradually to ebullition, and maintain this temperature half an hour. Small particles of tea adhering to the neck of the flask should be washed down with a few drops of water. After boiling, cool and add subacetate of lead in slight excess. The amount of the reagent required may be determined by the ease with which the precipitate separates.

Approximately 0.3 C.c. concentrated lead solution is required per gramme of tea. After the addition of the lead solution, complete the volume to 300 C.c., and shake the flask to mix its contents thoroughly; filter off 100 C.c. of the solution into a sugar flask—*i.e.*, a flask graduated to 100 and 110 C.c.; precipitate the excess of lead with hydrosulphuric acid, employing ether to prevent foaming; heat to expel excess of the reagent, cool, and complete the volume to 110 C.c. The extra 10 C.c. permit washing the gas-delivery tube.

Filter, transfer 55 C.c. of the filtrate, corresponding to 0.5 Gm. of tea, to a separatory funnel, and extract seven times with chloroform. The chloroform solution of the theine is collected in a tared flask, and the solvent removed by distillation and drying. The temperature at which the latter is accomplished should not exceed 79° C. The theine obtained is very pure, and contains 1 molecule of water of crystallization. It may be noticed in the above method that all washing of precipitates is avoided. A slight error is introduced through the non-removal of the tea residue and the lead precipitate, but this will rarely if ever exceed about 0.02 per cent. A second error results from leaving the lead sulphide in the sugar flask; but this is extremely small, if care has been taken in adding the lead subacetate.

If preferred, the lead may be removed without the use of the sugar flask, a definite volume of the solution being taken for this purpose. In this case the precipitate requires washing. It is preferable to follow the method as first described, as in this way the volume of the solution in the funnel will not exceed 55 C.c., a large volume being objectionable through the possibility of a portion of the alkaloid remaining in water solution.—*Journ. of Analyt. Chemistry*, iv., Part 4.

Why is this Necessary?—An effort is being made in Georgia to prohibit physicians, and prescription clerks in drug establishments, from pursuing their professional calling, who may become intoxicated from the use of liquors and opiates.

THE

American Druggist

AN ILLUSTRATED BI-WEEKLY JOURNAL.

VOL. XX., No. 4. WHOLE No. 202.

WILLIAM WOOD & COMPANY,
PUBLISHERS,
56 & 58 LA FAYETTE PLACE,
NEW YORK, N. Y.

SUBSCRIPTION PRICE per year, - - - - - - - $1.50
SINGLE COPIES, - - - - - - - - - .10

Address all communications relating to the AMERICAN DRUGGIST *to* WILLIAM WOOD & CO., *56 and 58 La Fayette Place, New York City, to whose order all postal money orders and checks should be made payable.*

The AMERICAN DRUGGIST *is issued on the 1st and 15th of each month. Changes of advertisements should be received before the 5th and 20th. New advertisements can occasionally be inserted after the 10th and 25th.*

EDITORIAL.

THERE is no question which now receives so much attention from pharmacists in this country as that of cutting prices on goods and the ways for preventing the evil. It would be difficult to recite the numerous plans which have been proposed to accomplish the needed reform, and still more laborious to enumerate all the conditions which have led up to the demoralization of the retail drug business which makes some action necessary. The gravity of the situation in some sections may be aptly illustrated by the story told by a returned hunter, who, among other marvellous things, said that his dogs, after chasing a woodchuck for several miles, finally ran him up a tree Whereupon one of his auditors, having kept his peace. thus far, objected that "a woodchuck can't climb a tree." Nothing abashed, the narrator replied: "*This* woodchuck *had to*, by gosh!"

One may not be able just yet to understand how the evil of cutting rates is to be avoided or abolished, but it nevertheless remains that *it's got to be!*

Some time since the drug trade was apparently stirred to its depths by the agitation of this question, but we venture the prediction that it was a passing squall compared with the gale which is soon to blow.

Whenever the retail trade are ready to unite upon the support of any measure for the prevention of price-cutting, they will readily overcome the difficulties of its enforcement, no matter what the measure may be. It may require greater unanimity and more prolonged effort to work some schemes than may be requisite for the working of others, but work they *must*—one or the other; and the sooner the Section on Trade Interests of the American Pharmaceutical Association gets the necessary machinery at work for the elaboration of *a* plan, the sooner will the reform be accomplished. The journals of the trade may serve for an interchange of views, and for comparing the results of the different measures attempted in various sections of the country, but a standing committee of representative retailers must be the body which works out the scheme.

We have one suggestion to make: As in the treatment of disease the study of its causes and the essential factors in its pathology *must* precede its rational treatment, so in this case any measure of reform, to be of lasting benefit, must be preceded by an understanding of the conditions which have given rise to the present deplorable state of the retail trade. Then any measure adopted for its relief will be likely to be founded upon correct principles, and comprise details which may, perhaps, be varied somewhat to adapt them to the needs of particular localities. Without some such underlying principle of general application, any measures adopted are likely to prove either practically valueless or of only temporary utility.

There will be no lack of reformers with projects which they will guarantee to accomplish the desired end, but which, upon sober consideration by a competent committee, will be found to resemble the oft-invented machine for achieving perpetual motion. So, too, there will be no lack of fault-finding and adverse criticism of any scheme which may finally be adopted; but let it be understood that no human workmanship is perfect or incapable of improvement, and that the success of any scheme will be due less to the perfection of the instrument than to the degree of unanimity with which it is applied. Let the committee do the best it can to approach perfection in the plan it finally recommends, and then let the retail trade give it hearty and earnest support, and the thing will *go*. Later on the plan can be modified in its details—if perchance there should remain any price-cutting necessitating it, which we doubt, since *the unanimous, or nearly unanimous, attitude of the retail trade toward* SOME *plan, rather than the actual details of the plan itself, will bring about the result desired.*

UNDER the heading of "Information Wanted," on another page of this issue, our readers will find abundant opportunities for appreciating the variety of questions which an editor is called upon to answer. It has occurred to us that we may be doing a double favor by allowing others to answer them. If it be acknowledged to be "more blessed to give than to receive," we have been monopolizing a goodly proportion of this particular kind of blessing for many years past; but we assure you that it has been without any intention of being selfish. If those who have any wish to increase the general or individual stock of information by answers to these conundrums will have the goodness to address their answers to us, we will give them public acknowledgment in the next succeeding issue (unless they express a desire to remain anonymous), and forward their answers to the persons making the inquiry. We shall place as few restrictions as possible upon the nature of questions and replies, having regard only to the general interests of our patrons.

IN this connection we ask the attention of foreign manufacturers to queries 2,510, 2,512, and 2,513, and suggest that greater attention to the advertisement of their wares in the trade journals of this country might be to their pecuniary advantage.

Our intention and habit has been, when publishing notices of new apparatus and materials, to accompany these with information which would enable our readers to correspond with the maker or vender of the article referred to, but in a large proportion of instances the sources of our own information were defective in these particulars. This has resulted in numerous letters of inquiry addressed

to us, which we have very often been unable to answer without much trouble and correspondence. It has been customary with us in some cases to refer our correspondents to one or another of our advertising patrons most likely to be in communication with foreign dealers, but they, too (as in No. 2,512), have been unable to get satisfactory replies in many instances.

Our ingenious and enterprising friends in Germany seem to be particularly and phenomenally modest in such matters, and, having produced a good thing, proceed at once to secrete themselves in such a way as to prevent anybody from asking them questions about it or purchasing it when it is in the nature of a commodity. We tender to such the opportunity and advantages afforded by our advertising columns, and will cheerfully convert their German into the most attractive Americanisms of which we are capable.

As for the matter of translation, it is hardly essential, for, next to the two largest cities of Germany, the largest German-speaking communities are in the United States, and the proportion of German-speaking persons in the drug trade is very large indeed. In many towns they form the majority of those engaged in the business. It may be that it was an Americanized German *Apotheker* who wrote to his brother in the *Vaterland:*

> "*Oxcose me dot I schribe you in Englische. Ich bin so lange hier im Staat Wisconsin gewohnt, dass Ich habe already twice gevoted!*"

One may well believe that he might still have retained sufficient remembrance of his Teutonic vernacular to enable him to understand a German advertisement in the original text, especially if it were well "displayed" and printed "loud."

We beg the attention of our readers to the meeting of the American Pharmaceutical Association at New Orleans on the 27th of April, and urge the importance of immediate work upon any papers that they may have in contemplation. Work of this character, prepared with care and method in advance, will be much more satisfactory for the Association and creditable for the author than something devised in a hurry and presented without revision. The Association has been fortunate thus far in the quality of the majority of papers brought before it, and as time goes on the standard of excellence will become still higher. It is not essential that every subject should be of the first importance—if it were possible; but the dignity of the body should discourage crude work on any topic, and a comparatively trivial subject may, by careful and thorough elaboration, be made to assume a character that will render it very worthy of consideration.

Those who have read that most delightful book, Michael Faraday's "Chemistry of a Candle," need never despair of achieving a success if they will imitate the painstaking habits of its author. There is not a process within the daily experiences of the most humble pharmacist about which there does not remain something to be learned by patient observation; and it is more often than otherwise the man who puts his mind to such subjects who confers the greatest good upon his fellows and acquires the greatest profit for himself. Don't despise the minor topics, but elaborate them with honest work, and you will acquire the knowledge which will enable you to handle others of greater intricacy and importance.

George C. Close, of Brooklyn, N. Y., died on January 13th at the age of 79 years. He was one of the first graduates of the New York College of Pharmacy, and for years had acted as one of its trustees. He held office as its vice-president and president, and was distinguished as most faithful in discharge of official duties. Since 1858 he was a member of the American Pharmaceutical Association, and a frequent attendant at its meetings. He was greatly beloved and respected by all who knew him.

IODIZED CARVACROL.

A substitution product derived from carvacrol, in which part of the hydrogen is replaced by iodine, has been patented by Fr. Bayer & Co., of Elberfeld. It is expected to be enrolled among the substitutes of iodoform, and will probably appear under a specially coined name. According to the German Patent No. 53,752, a dilute solution of 1.5 parts of carvacrol (see below) in alkali (1.6 parts of soda) is treated with 10.16 parts of iodine and the same quantity of iodide of potassium, care being taken to keep the solution alkaline. The yellow precipitate which results is washed and dried. It is a yellowish-brown powder, insoluble in water, difficultly soluble in alcohol and readily in ether, chloroform, and olive oil.

Carvacrol is derived from carvol, the oxygenated, odorous constituent of oil of caraway, which is separated from other constituents by fractional distillation. To prepare carvacrol, 100 parts of carvol (obtainable in the market under the name of "quintessential oil of caraway") are diluted with 100 parts of ordinary oil of caraway, the mixture placed into a flask together with 24 parts of glacial phosphoric acid (in lumps free from phosphates), and heated to boiling, under a return condenser, during four hours. The liquid, which is at first as colorless as water, gradually turns dark, due to the formation of some resin, and at the close of the reaction has a deep reddish-brown color. After the source of heat is withdrawn, the viscid liquid is poured, while still warm, from the flask. If this is not done, the latter will break when the phosphoric acid solidifies. The oil is filtered and then distilled, the portion boiling between 232° and 237° C. being collected separately. This is repeated several times, until pure carvacrol is obtained, boiling at 237° C. It is a viscid oil, congealing at −20° C., and becoming liquid at 0° C.

OZONE WATER.

A German patent was taken out last year by Dr. Graf, of Berlin, for a method of preparing a permanent ozone water.

It depends upon the addition of a small quantity of sodium or magnesium chloride to an ozone solution prepared by passing ozonized oxygen through water, or to the water before the solution of the ozone is effected.

At present ozone water is manufactured in this city by a process devised or improved by Siemens. We have had occasion to examine the factory, process, and product, and believe that the latter will be introduced into various important technical processes in a short time.

An ozonized oil, likewise prepared by the same company, is now being experimented with in one of the public hospitals. It has been so far found a most effective agent for destroying the bad odor arising from ulcers and similar sores.

ACETIC ETHER AND DIETERICH'S OPIUM ASSAY.

ONE of our correspondents writes that, on trying Dieterich's opium assay, in which acetic ether is used in place of ethylic ether, he obtained scarcely any morphine at all, although the opium he tested was afterwards found to contain over 12 per cent of the alkaloid.

The reason of the failure of our correspondent was simply the poor quality of the acetic ether he used. We have so far seen but little acetic ether on this market which would pass strict muster. Most of it is contaminated with alcohol (sometimes a large proportion), also with water. We might suggest to our correspondent to purify the commercial product by mixing, say, 20 fluidounces of it with 5 fluidounces of water, shaking thoroughly, and then allowing the layers to separate. The upper, ethereal layer is now removed, and must be deprived of water, which is best done by means of fused chloride of calcium. The remaining liquid is then carefully distilled. If the original acetic ether was practically free from alcohol and only contained water, shaking it with water will but slightly increase the aqueous layer. If, however, alcohol was present, the aqueous layer will be more voluminous.

Section on Scientific Papers of the American Pharmaceutical Association.

THE meeting of the Association this year in New Orleans furnishes an opportunity for reports on subjects of great interest to members from other localities and of importance to pharmaceutical literature. As in the California meeting in 1889 many subjects of local interest were reported, so the region tributary to New Orleans furnishes many subjects, possibly considered of little importance at home, but to the majority of pharmacists throughout the country, as well as abroad, both interesting and instructive,

The tropical climate of portions of Florida and the West Indies, the adjacent territory of Texas, Mexico, and Central America, furnish many substances of which little is known, but possibly of great interest to the arts and to pharmacy—indigenous plants of local reputation, medicinal substances which may be of considerable value.

The cultivation of the trees of the citrus family, the orange, lemon, and lime, also of the eucalyptus, with the production of oil and other substances from these, would be exceedingly instructive to persons residing in other localities.

Reports upon the condition and prospects of pharmacy in the extreme South would also no doubt be interesting.

Papers should be received by the committee not later than March 15th.

THE COMMITTEE ON SCIENTIFIC PAPERS of the American Pharmaceutical Association is now completing the list of queries to be published shortly.

Owing to the next annual meeting of the Association being held earlier in the year than usual, the time for the compilation of queries, as well as for the preparation of papers in answer to these, is necessarily limited and more brief than in former years.

Members and others interested will, therefore, aid the committee in transmitting subjects for the queries at once, and also advise its officers as to contemplated contributions to be ready by March 1st next.

Fraternally,

E. L. PATCH, *Chairman*,
109 Green Street, Boston, Mass.
GREENLEAF R. TUCKER, *Associate*,
C. S. N. HALLBERG, *Secretary*,
69 Dearborn Street, Chicago.

INFORMATION WANTED.

OUR *readers will confer a favor by answering any of the following questions and referring to them by number. We will undertake to forward the answers to inquiries when the request for information is accompanied with a directed envelope and postage. The names of the respondents (unless otherwise indicated) will be published in the next issue of the journal.*

2,497.—Composition of **Dr. Tucker's No. 59.**

2,498.—Composition of **Nail-Bleach** (sometimes called "**Ongoline**"), used by manicures to render finger nails white. It is an amber-colored liquid, perfumed, and having an acid reaction.

2,499.—(*a*) How is **Red Clover** used externally in cancer? (*b*) What other plant or vegetable extracts are used in the plasters for removing cancer? (*c*) Give a few formulas for preparation of plasters for cancers. [NOTE.—The name and address of this inquirer are illegible.—ED.]

2,500.—What causes the whitish precipitate in **Elix. Ferri Phosph. Quin. et Strych.** made according to formula in National Formulary, and how am I to correct it?

2,501.—Address of a Mr. Warren who recently contributed an article to the *Chemical News* on an improvement in the manufacture of **Potassium Cyanide**, an abstract of which was published in this journal for January 15th ult.

2,502.—What will take off **tattooing** from the skin?

2,503.—Formula for "**Wine Mitchella Comp.**"

2,504.—Where can **gold fish** be bought (to keep in bell on counter)?

2,505.—Contents of "**Lydia Pinkham's Vegetable Compound.**"

2,506.—Reliable test for "**Exalgine.**"

2,507.—(*a*) Formula for "**Wine Mitchella Compound.**" (*b*) Formula for "**Syrup White Pine Compound.**"

2,508.—[Answered by EDITOR.]

2,509.—Formula for **blackboard slating** without alcohol.

2,510.—Where and at what price can a "**Bulow's Tablet Machine**" be obtained? (*Vide* AMER. DRUGG., August, 1890, p. 143.)

2,511.—Composition of **Jonas Whitcomb's Remedy** for asthma, rose cold, hay fever, prepared by Joseph Burnett & Co., of Boston.

2,512.—**Address of Mr. J. M. Richter**, maker of tablet machine described in AMERICAN DRUGGIST of November, 1890, also referred to in December issue. Letter addressed to him at Gratz returned. "Party not found."

2,513.—Where to obtain the **Machine for making Compressed Tablets**, mentioned in November issue (see also No. 2,512).

A Paper Mouse Trap.

A PAPER mouse trap? Certainly; and an uncommonly good one it is, too. It was invented—or discovered; Josh Billings used to say that all our inventions are mere discoveries—by a bright little housekeeper in a neighboring city, after this fashion: Despite all screens, the ubiquitous fly persisted in visiting her kitchen, and to stop his buzzing she bought some sticky fly-paper and told madame the cook to display its attractive and retentive surface freely in various parts of the room. And it was so. But the next morning there was a sound of squeaking and of squealing, and lo! upon a sheet of the paper which had been laid flat on the tub lids was Master Mus Musculus, very much distressed in mind, and as to all four feet very much stuck fast. Thereafter, whenever mice became troublesome, a sheet of the paper was laid near their run, with a sure repetition of the above result. Up to date, eight have been thus taken, and the paper still holds good. No patent applied for.

BIBLIOGRAPHY.

PHYSICAL DIAGNOSIS AND PRACTICAL URINALYSIS. An Epitome of the Physical Signs of the Heart, Lung, Liver, Kidney, and Spleen in Health and Disease. Edited by JOHN E. CLARK, M.D., Professor of General Chemistry and Physics in the Detroit College of Medicine. Detroit: Illustrated Medical Journal Co. Pp. 193, sm. 8vo. $1.

While this work is, as its title would indicate, a clinical aid in a general way in medical cases, its chemical section is rather the strongest feature and of chief value. It is to be hoped that the author will amplify future editions so as to embrace some of the recent researches in animal chemistry and a general outline of pharmaceutical chemistry—knowledge which medical students have scanty means for acquiring.

A MANUAL OF WEIGHTS AND MEASURES. Including Principles of Metrology; the Weights and Measures now in use; Weight and Volume, and their Reciprocal Relations; Weighing and Measuring; Balances (Scales) and Weights; Measures of Capacity; Specific Weight and Specific Volume, etc., with Rules and Tables. By OSCAR OLDBERG, Pharm.D., Professor of Pharmacy and Director of the Pharmaceutical Laboratory in the Illinois College of Pharmacy, and Department of Pharmacy of the Northwestern University. Third Edition, Revised. Chicago: W. T. Kerner, 96 Washington St. 1890. Pp. 250, sm. 8vo.

We have noticed former editions of this valuable handbook, and heartily recommend its possession by all whose work involves the consideration of quantities by weight or measure. Its tables are labor-saving contrivances, and are so numerous and elaborate as to leave little occasion for mathematical calculation.

YEAR-BOOK OF PHARMACY. Comprising Abstracts of Papers relating to Pharmacy, Materia Medica, and Chemistry contributed to British and Foreign Journals from July 1st, 1889, to June 30th, 1890. With the Transactions of the British Pharmaceutical Conference at the Twenty-seventh Annual Meeting, held at Leeds, September, 1890. London: J. & A. Churchill, 11 New Burlington St. 1890. Pp. 551, 8vo. 10 shillings.

The receipt of this annual is always a source of gratification. Its contents are always comprehensive and bear the evidences of intelligent discrimination. It is a worthy companion for the Transactions of our own National Association, and they serve to supplement each other.

PROF. KOCH'S METHOD TO CURE TUBERCULOSIS POPULARLY TREATED. By DR. MAX BIRNBAUM. Translated from the German by DR. FR. BRENDECKE. With an Appendix, being Prof. Koch's First Communication on the Subject, translated from the *Deutsche Medicinische Wochenschrift*, and Explanatory Notes by the Author. Milwaukee, Wis.: H. E. Haferkorn, 1891. Pp. 78 and 27, 8vo. Paper 75 c., cloth $1.

A popular treatise of this character is worthy of much praise, since the knowledge which it conveys will do much to correct misapprehension of the nature of Prof. Koch's methods and consequent disappointment and harm.

A LABORATORY MANUAL OF CHEMISTRY, MEDICAL AND PHARMACEUTICAL. Containing Experiments and Practical Lessons in Inorganic Synthetic Work; Formulæ for over Three Hundred Preparations, with Explanatory Notes; Examples in Quantitative Determinations and the Valuation of Drugs; and short Systematic Courses in Qualitative Analysis and in the Examination of Urine. By OSCAR OLDBERG, Pharm.D., Professor of Pharmacy and Director of the Pharmaceutical Laboratories in the Illinois College of Pharmacy, Northwestern University; and JOHN H. LONG, Sc.D., Professor of Chemistry and Director of the Chemical Laboratories of the Chicago Medical College and the Illinois College of Pharmacy, Northwestern University. With Original Illustrations. Second Edition, Revised and Enlarged. Chicago: W. T. Kerner, 96 Washington St. 1891. Pp. 455 and 3 plates, 8vo.

The title page gives the contents of the work, and the preface states that the greater part of this edition is an exact reprint of the first. The chapter on urine analysis has been, however, rewritten, and a new chapter has been added on the microscopic examination of urinary sediments. In the treatment of the subjects the method and language of the Pharmacopœia have been followed to a considerable extent.

BACTERIOLOGICAL TECHNOLOGY FOR PHYSICIANS. With Seventy-two Figures in the Text. By DR. C. J. SALMONSEN. Authorized Translation from the Second Revised Danish Edition, by WILLIAM TRELEASE. New York: William Wood & Co. 1890. Pp. 162, 8vo.

A good manual for the guidance of such physicians as have occasion to acquire a practical knowledge of bacteriology has been needed for some time. The author is well known as an accomplished bacteriologist, and this effort has been made to aid those who have not the advantage of established laboratories, but are obliged to work at home and with such materials as are commonly available.

PROCEEDINGS of the Michigan State Pharmaceutical Association at its Eighth Annual Meeting, held at Saginaw, September 16th, 17th, and 18th, 1890. Also the Constitution and By-Laws, Roll of Members, etc. 1890. Pp. 95, 8vo.

The papers and discussions in this report upon matters of trade interest are especially interesting.

A SYNOPSIS OF MORBID RENAL SECRETION. Second Edition, Revised. By ALBERT ABRAMS, M.D., Adjunct to the Chair of Clinical Medicine, and Demonstrator of Pathology, Cooper Medical College, San Francisco. The Bancroft Company. 1890. $1.

This is in form of a chart on card-board, 22x28 inches in size, and gives in tabular arrangement the leading facts of urinary chemistry.

POST-MORTEMS: What to Look for and How to Make Them. With Sections on Infanticide, Poisons, Malformations, etc. By A. H. NEWTH, M.D., London. Edited, with Numerous Notes and Additions, by F. W. OWENS, M.D., Demonstrator of Anatomy in the Detroit College of Medicine. Published by the Illustrated Medical Journal Co., Detroit, Mich. Pp. 136, 3¼x7 inches. $1.

This has been made with a view to the needs of many who, having occasional need for a guide in post-mortem examinations, have not the time to consult elaborate treatises on the subject. Nevertheless, it is very comprehensive, and is perhaps quite as thorough in elaboration as there is any need, unless it be in cases demanding expert skill.

TWENTY-FIRST ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS. 1890. Pp. 457, 8vo.

This report is always interesting from the thorough way in which its subjects are handled. The report of Dr. B. F. Davenport of the results of his examination of six hundred samples of drugs requires but less than four pages, and shows by comparison a very commendable regard for legal standards on the part of dealers. Over 83 per cent were found to be of proper quality, and the variations were mostly among the things which are more often faulty than otherwise.

ESSENTIALS OF PHARMACY. Arranged in the Form of Questions and Answers. Prepared especially for Pharmaceutical Students. By LUCIUS E. SAYRE, Ph.G., Professor of Pharmacy and Materia Medica of the School of Pharmacy of the University of Kansas. Philadelphia: W. B. Saunders, 309 Walnut St. 1880. Pp. 179, sm. 8vo. $1.

There are many features of this work which are very excellent, and its use by pharmaceutical students cannot fail to render their knowledge of the subject more permanent.

NEWS NOTES.

The retail druggists of Philadelphia, to the number of over one hundred, held a meeting at No. 1128 Arch street, on Monday, the 2d of February, which is said to have been the largest meeting of the trade held there for many years.

The meeting was presided over by Mr. W. N. Stern, and finally resolved to adopt the coupon scheme, offered by Mr. Kline, representing the National Wholesale Druggists' Association, to prevent the sale of patent medicines at cut rates.

Under this plan the manufacturer will place on each of his preparations a coupon representing twenty per cent of its retail price. The coupons are to be detached at the sale of each package or bottle of the proprietary goods, and these will be redeemed by the manufacturer after the retailer has made an affidavit that the medicine was not sold below the regular price.

A substitute for Mr. Kline's motion, offered by William H. Lacey, proposed the establishment, by the manufacturers, of local agencies throughout the city, these to have the exclusive sale of the medicines controlled by the maker they shall represent.

Mr. Kline, being a wholesaler, quickly expressed his opposition to Mr. Lacey's plan. He said that he would be pleased to see such agencies established if the firm with which he was connected should be awarded the distribution of the drugs.

Mr. Lacey's motion was then offered to the meeting and defeated. The coupon plan was then voted on and carried.

During the hot discussion, which was softened by frequent laughter and applause, the fact that cut rates also exist in the preparation of prescriptions was brought out.

One of those present said patent medicines should be boycotted, as at present there was no profit in the handling of the goods; every dealer being compelled to cut rates to get rid of his stock. Mr. Bell said there was no remedy in boycotting, as the people read the advertisements and would use the patent medicines.

The question will now be brought before a meeting of committees representing the wholesale dealers, the jobbers, and the retailers, who will decide on a final plan to be offered the manufacturers. It is said that the latter are willing to follow whatever plan the trade may suggest to circumvent the "cutters," who, it is said, are more numerous here than in any other city.

A CHANGE IN THE LAW FAVORED.

After the "cut" rates had been disposed of, Prof. Remington denounced the eleventh section of the Pharmacy law of Pennsylvania, which requires a pharmaceutical graduate to pass an examination by the Board of Examiners before he can establish a drug store, and permits a physician to conduct the business on the mere fact of his possessing a doctor's diploma. The amendment offered the Legislature will enable the graduate of a pharmaceutical college to also practise on his diploma and without the examination now required. Those out of the business for a year previous to the passage of the amendment can also engage in the drug trade without going before the Board. Mr. Kline declared that the amendment would be the means of creating colleges for the manufacture of pharmacists, and would degrade the profession. The motion favoring the amendment was carried unanimously.

The Boston Druggists' Association held its annual meeting and dinner at Parker's last month, and, as usual, entertained eminent gentlemen representing the national, the State, and the city governments.

Previous to the dinner the business meeting was held in the parlors, where the following board of officers was elected to serve for the ensuing year: President, Amos K. Tilden; treasurer, Thomas L. Jenks; secretary, James O. Jordan; executive committee, Frank A. Davidson, William F. Horton, Francis Hollis, Harvey S. Sears, Charles A. Kilham, William A. Chapin, George W. Cobb; committee on membership, Charles A. West, Reuben L. Richardson, George H. Ingraham, Alfred H. Bartlett, Josiah Bryant.

After two new members had been admitted it was voted the sense of the members that in the retirement of the late president, Mr. Gorham D. Gilman, the association lost a presiding officer who had done much to bring prosperity to the organization.

Over one hundred members sat down to the dinner table, ex-President Theodore Metcalf presiding, and having with him at the head of the table Collector Beard; the new president, Mr. Amos K. Tilden; Attorney-General Pillsbury, Aldermen Carruth and Rust, Mr. Stephen O'Meara, Dr. Thomas L. Jenks, Prof. G. F. H. Markoe, and Mr. Albion Clapp.

After the dinner addresses were made by Collector Beard, Attorney-General Pillsbury, Alderman Carruth, and Stephen O'Meara of *The Journal.*

MISSOURI MENTIONINGS.

ST. LOUIS.

IT is probable that the St. Louis Apothecaries' Association will hold a meeting about the middle of the month. Thos. A. Layton is one of the moving spirits in this organization.

The Executive Board of the Alumni Association of the St. Louis College of Pharmacy met February 3d. A special committee on prizes, consisting of T. A. Buckland, Prof. Francis Hemm, and Dr. J. C. Falk, was appointed.

A class in field botany for pharmacists is just what is needed here in the spring, but no one seems to be ready to start it.

Will there be a druggists' ball this spring? Such is the question asked by the wives, daughters, and best girls of the druggists and drug clerks. Last year was an off-year, as no ball given.

The proposed rebate plans are stirring up the local jobbers and exciting some of the retailers, but no decided action has been taken by any of them.

The Omega Phi Society of the St. Louis College of Pharmacy is a flourishing organization of the senior class. They have selected MR. M. L. HOLLOWAY, of Middleton, Pa., as valedictorian on behalf of the class.

A regular monthly meeting of the St. Louis Club of Microscopists was held February 5th. The next meeting occurs the first Thursday in March.

B. F. PYLE, of B. F. Pyle & Co., Lincoln, Neb., was in the city some days ago to meet numerous friends.

CHARLES ROGERS, formerly of this city, is now practising his profession in the fine atmosphere and amid the beautiful scenery of Denver, Col.

CHAS. E. BURKHARDT, Ph.G., has gone to Pine Bluff, Ark., as clerk for D. I. Mills & Co.

The second edition of PROF. WALL'S work, entitled "The Prescription," is out and meeting with a ready demand.

The matrimonial engagement of ED. H. WOLF, of the Wolf-Wilson Drug Co., is announced in society circles.

DR. L. HAIGH has been off to Columbus, O., on a business trip.

DR. H. M. WHELPLEY will deliver a lecture on the "Wonders of the Microscope" to the Working Girls' Self-Culture Club, 2004½ South Broadway, Friday evening, February 20th.

H. J. MEYER, of the Meyer Brothers' Drug Co., has recently moved into his elegant new residence. It is one of the finest homes in the city, and lighted throughout with electricity.

AMOS POOLE, the druggist, corner of Washington avenue and 13th street, is now a medical student. He has a host of druggist associates in the same occupation.

DR. E. H. GRIFFITH, inventor of the Griffith Club Microscope, was in the city a few days last month and called on old friends.

L. W. O. RINKERT has a new store on the corner of Garrison avenue and North Market street.

H. F. GRIESBACH, of 3301 Easton avenue, is looking for the clerk that stayed with him just long enough to clean the money drawer of all the change it contained.

THEO. KLIPSTEIN is now a busy man. He has charge of the store at 16th street and Franklin avenue, and is also interested in the firm of John Guerdan & Co. on West Olive street.

FRANK A. TEMM is one of the drug clerks who studied medicine and now has a good practice.

KANSAS CITY.

M. J. O'KEEFE is at Eleventh street and Broadway.

FRED. C. HATHAWAY is once more with Meyer Bros. Drug Co.

O. W. and FRANK LOWE are with George & Fred. Eysell.

JNO. HOOVER is with Dr. O. F. Jones, at Independence and Waldron avenues.

J. ANDREWS is at Twelfth and Charlotte streets; was formerly with D. V. Whitney, Twelfth street and Porter road.

W. W. GREGORY is now head clerk at Frank Price's, opposite Union Depot.

BENJ. C. HOWARD, Ph.G., Fort Worth, Texas, is visiting parents in the city.

PROF. E. LANPHEAR is delivering a course in Latin at the College of Pharmacy.

JNO. C. MAXSON is pharmacist for the Fair View Hospital and the University Medical College.

J. R. MCGEORGE, Ph.G. (class of '89-'90), is at Fifteenth and Jackson streets.

HENRY KAUFHOLZ, Ph.G., graduate of the K. C. College of Pharmacy, is now with Heller, Sixteenth street and Brooklyn.

GRASE FAGIN (class of '88) is proprietor of a store at Lathrop, Mo. He reports business good.

WE understand the Gem Drug Store, which was assigned to Meyer Bros. Drug Co., will be sold at auction.

The pleasant face of CHAS. W. NEAL, Ph.G. (class '90), now brightens the laboratory of Woodward, Faxon & Co.

W. D. BARTON, formerly a pioneer druggist of Ohio, is now justice of the peace at Independence and Troost avenues.

CHAS. MCDONALD, one of the best known druggists of this city, will graduate at the University Medical College this year.

The class of 1890 will never forget the pleasant stories of JAMES G. YONGE. He is proprietor of a store at Rich Hill, Mo.

S. E. JOHNSTON will practise pharmacy and dentistry together. He is attending both the Western Dental College and the College of Pharmacy, and comes from Seneca, Kan.

H. B. SPARKS, Ph.G., Illinois College of Pharmacy, is manager of the artistic drug store near the Union Medical College, Ninth and Harrison streets.

DR. O. F. JONES, druggist at Independence and Waldron avenues, has been called to Gainesburg, Pa., to be at the bedside of his dying mother.

MR. D. M. CLARCK, Twelfth and Harrison streets, will retire from the drug business in the near future, and MR. LEMON will have charge of the store.

JULIUS G. KEIFER, M.D., Ph.G., is one of those progressive men who have studied medicine after graduating in pharmacy. He is located at Sixth and Locust streets.

ROBT. C. CANNON, whose father is President of the Upper House of the City Council, is attending the College of Pharmacy. He is employed at Woodward, Faxon & Co.'s.

THE KANSAS CITY RETAIL DRUG CLERKS' ASSOCIATION has "gone by the way" some months past, but chances are it will be organized again, dressed in a new suit of clothes, ere Eastertide.

J. F. CHANDLER is with O'Reilly Bros. in the Warder Grand Drug Store. He is a senior at the College of Pharmacy, having attended his first course at the Illinois College of Pharmacy.

"UNCLE JAKE" LEABO, as well known as any druggist in Northwest Missouri, is an enthusiastic temperance advocate at Excelsior Springs. He recently aided in prayer service in one of the saloons in that city.

MR. F. BYRNE, of the firm of Walker & Byrne, has just returned from a two weeks' visit to Houston, Galveston, and other Southern cities. He has many pleasant anecdotes to tell of his trip. Mrs. Byrne is visiting relatives in Ohio.

Smuggling Opium.

THE manager and four clerks of a large Chinese firm which deals in teas and other products of China at No. 34 Pell street, in New York, were lately arrested charged with smuggling opium. For some time officials of the Government have been aware that the drug has been brought into this country without the payment of duty, and about two months ago Secretary Windom detailed Special Treasury Agent H. A. Moore, of Ogdensburg, N. Y., and Special Inspectors C. Lewis, of Niagara Bridge, and H. E. Taylor, of Montreal, to investigate the cases of smuggling. It was known that the opium was brought here from Victoria and New Westminster, British Columbia, where thirty firms are engaged in cooking the drug. The opium is imported there in its crude state, the duty being $1 a pound. The tariff on the article prepared for smoking is fixed at $12 a pound by the United States laws, and the price of the opium here is about $30 a pound.

Not long ago the Treasury officials came into possession of a scrap of paper which indicated that a man called A. D. Wilder and a number of aliases was connected with the smuggling. Wilder was known to have dealings with the firm in Pell street, and made frequent trips between Victoria and New Westminster, B. C, Montreal, Quebec, New York, and other points in this country. An examination of the register of the Hotel Blanchard in Montreal showed that Wilder's handwriting was the same as that on the scrap of paper. Wilder was traced to a place in Quebec, and was seen to buy a railroad ticket for St. Johns, Neb. The three officers took the same train that he did, and noticed that he carried two large, cheap valises. They took a seat behind him, and learned something about him. Lest they should arouse his suspicions, they left the train and went to Boston by another route.

When Wilder arrived in Boston he was arrested. In the valises were found two cans of opium, containing twenty-five pounds each. Wilder was held in $10,000 bail by a United States Commissioner. In his pocket were found papers showing that he had smuggled opium worth $30,000 in the last eighteen months, and also proving that he had brought some of the drug to the firm of Wing Wau Chung, at No. 34 Pell street. This house does a large business, having offices in Pekin, San Francisco, Victoria, B. C., and Boston, besides in New York.

The three Treasury officials and Deputy Sheriffs McGrath and Van Buskirk went to the place in Pell street, and arrested Lee You Pine, the manager, and Suo King, Lee Fou, Lee Quoin, and Lee Chung, clerks. A quantity of opium was found in the house, and in addition a number of cheap valises, with the partitions cut out, like those that Wilder had carried.

Official Red Tape.

SHE walked timidly up to the stamp window, where the clerk was standing in awful dignity, and laid a copper before him.

"Stamp, if you please."

"How many?"

"One, please."

"Two cent or a one cent?"

"A one cent, please."

The Government was satisfied, and the stamp was produced.—*Lowell Citizen.*